

**THE CLAIMS**

1. In a pattern former of the type adapted to receive wrapped bakery products, to assemble the received wrapped bakery products into a predetermined pattern, and  
5 to transfer the predetermined pattern into a bakery tray, the improvement comprising:

a vacuum turntable for receiving wrapped bakery products in groups and for assembling the received groups of wrapped bakery products into a predetermined pattern;

10 the vacuum turntable comprising a perforated plate characterized by perforations having predetermined diameters and predetermined spacing between perforations; and

a vacuum turntable drive apparatus including a  
15 drive belt extending around the exterior of the turntable and a drive motor for actuating the drive belt to position the turntable to receive and orient groups of wrapped bakery products.

2. The improvement according to Claim 1 wherein the  
20 perforations comprising the perforated plate of the vacuum turntable are characterized by diameters of the between about .0337 inches and about .0340 inches.

3. The improvement according to Claim 1 wherein the perforations comprising the perforated plate of the vacuum turntable are spaced apart by a distance of between about .2186 inches and about 2225 inches.

5           4. The improvement according to Claim 1 wherein the perforated plate of the vacuum turntable is characterized by a thickness of at least about .020 inches.

10           5. The improvement according to Claim 1 further including a grouping apparatus for collecting individual wrapped bakery products into groups comprising between 1 and about 6 individual wrapped bakery products prior to the transfer of the groups of wrapped bakery products onto the vacuum turntable.

15           6. The improvement according to Claim 5 further characterized by a pusher plate for moving wrapped bakery products from the grouping apparatus onto the vacuum turntable for assembly thereby into predetermined patterns of wrapped bakery products.

7. The improvement according to Claim 6 further including apparatus for positioning the pusher plate and a substantially vertical orientation during the movement of wrapped bakery products from the grouping apparatus onto the vacuum turntable under the action of the pusher plate and for positioning the pusher plate in a substantially horizontal apparatus during return movement thereof, thereby facilitating the arranging of a subsequent group of wrapped bakery products on the grouping apparatus during the movement of a previous group of wrapped bakery products from the grouping apparatus onto the vacuum turntable.

8. The improvement according to Claim 1 further characterized by a slip sheet extending from the vacuum turntable and a pusher plate for moving patterns of wrapped bakery products from the turntable along the slip sheet and into bakery trays.

9. The improvement according to Claim 8 further characterized by apparatus for positioning the pusher plate in a vertical orientation during movement of patterns of wrapped bakery products into bakery receiving trays under the action of the pusher plate and for positioning the pusher plate in a horizontal orientation during return movement thereof, thereby facilitating the assembly of a subsequent pattern of wrapped bakery products on the vacuum turntable during movement of a previous pattern of wrapped bakery products from the turntable into a bakery tray.

10. The improvement according to Claim 9 further including a spanker plate and apparatus for reciprocating the spanker plate vertically to assure the positioning of the trailing portion of a pattern of bakery products in the receiving bakery tray.

11. In a pattern former of the type adapted to receive wrapped bakery products, to assemble the received wrapped bakery products into a predetermined pattern, and to transfer the predetermined pattern into a bakery tray, the improvement comprising:

a transfer apparatus including a pusher plate for moving groups of wrapped bakery products onto a vacuum turntable and retractable to facilitate forming a subsequent group of wrapped bakery products as a previous group of wrapped bakery products is being transferred to the vacuum turntable.

12. The improvement according to Claim 11 wherein the transfer apparatus further includes apparatus for positioning the pusher plate in a vertical orientation as the transfer plate moves groups of wrapped bakery products onto the vacuum turntable and for pivoting the pusher plate into a horizontal orientation as the pusher plate is moved away from the turntable.

13. The improvement according to Claim 11 further characterized by a slip sheet extending from the vacuum turntable and a pusher plate for moving patterns of wrapped bakery products from the turntable along the slip sheet and into bakery trays.

14. The apparatus according to Claim 11 further including a transfer apparatus for moving patterns of wrapped bakery products from the vacuum turntable into bakery trays comprising a pusher plate normally disposed to  
5 move patterns of wrapped bakery products from the vacuum turntable into bakery trays and retractable to facilitate the assembly of a subsequent pattern of wrapped bakery products while a previous pattern of wrapped bakery products is being moved from the vacuum turntable into a  
10 bakery tray.

15. The improvement according to Claim 14 wherein the transfer apparatus for moving patterns of wrapped bakery products into bakery trays is further characterized by apparatus for positioning the pusher plate in a vertical  
15 orientation during movement of patterns of wrapped bakery products into bakery trays under the action of the pusher plate and for pivoting the pusher plate into a horizontal orientation during return movement thereof.

16. The improvement according to Claim 13 further  
20 including a spanker plate and apparatus for reciprocating the spanker plate vertically to assure the positioning of the trailing portion of a pattern of bakery products in the receiving bakery tray.

17. The improvement according to Claim 11 wherein the vacuum table comprises a perforated plate characterized by perforations having predetermined diameters and predetermined spacing between perforations.

5           18. The improvement according to Claim 16 wherein the perforations comprising the perforated plate of the vacuum turntable are characterized by diameters of the between about .0337 inches and about .0340 inches.

10           19. The improvement according to Claim 16 wherein the perforations comprising the perforated plate of the vacuum turntable are spaced apart by a distance of between about .2186 inches and about 2225 inches.

15           20. The improvement according to Claim 16 wherein the perforated plate of the vacuum turntable is characterized by a thickness of at least about .020 inches.

21. In a pattern former of the type adapted to receive wrapped bakery products, to assemble the received wrapped bakery products into a predetermined pattern, and to transfer the predetermined pattern into a bakery tray, the improvement comprising:

a transfer apparatus for moving predetermined patterns of wrapped bakery products from a vacuum turntable into bakery trays comprising a pusher plate normally disposed to move patterns of wrapped bakery products from the vacuum turntable into bakery trays and retractable to facilitate the assembly of a subsequent pattern of wrapped bakery products while a previous pattern of wrapped bakery products is being moved from the vacuum turntable to a bakery tray.

22. The improvement according to Claim 21 wherein the transfer apparatus for moving patterns of wrapped bakery products into bakery trays is further characterized by apparatus for positioning the pusher plate in a vertical orientation during movement of patterns of wrapped bakery products into bakery trays under the action of the pusher plate and for pivoting the pusher plate into a horizontal orientation during return movement thereof.



23. The improvement according to Claim 21 further including a spanker plate and apparatus for reciprocating the spanker plate vertically to assure the positioning of the trailing portion of a pattern of bakery products in the receiving bakery tray.

24. The improvement according to Claim 21 wherein the vacuum table comprises a perforated plate characterized by perforations having predetermined diameters and predetermined spacing between perforations.

25. The improvement according to Claim 24 wherein the perforations comprising the perforated plate of the vacuum turntable are characterized by diameters of the between about .0337 inches and about .0340 inches.

26. The improvement according to Claim 25 wherein the perforations comprising the perforated plate of the vacuum turntable are spaced apart by a distance of between about .2186 inches and about 2225 inches.

27. The improvement according to Claim 26 wherein the perforated plate of the vacuum turntable is characterized by a thickness of at least about .020 inches.

28. The improvement according to Claim 21 further including a transfer apparatus including a pusher plate for moving groups of wrapped bakery products onto a vacuum turntable and retractable to facilitate forming a subsequent group of wrapped bakery products as a previous group of wrapped bakery products is being transferred to the vacuum turntable.

29. The improvement according to Claim 28 wherein the transfer apparatus further includes apparatus for positioning the pusher plate in a vertical orientation as the transfer plate moves groups of wrapped bakery products onto the vacuum turntable and for pivoting the pusher plate into a horizontal orientation as the pusher plate is moved away from the turntable.

30. The improvement according to Claim 21 further characterized by a slip sheet extending from the vacuum turntable and wherein the pusher plate moves patterns of wrapped bakery products from the turntable along the slip sheet and into bakery trays.

31. A method of assembling wrapped bakery products into predetermined patterns and thereafter transferring the patterns of wrapped bakery products into bakery trays for transport including the steps of:

5                    providing a grouping apparatus for receiving individual wrapped bakery products;

                  arranging groups of between 1 and about 6 wrapped bakery products on the grouping apparatus;

                  providing a vacuum turntable;

10                  providing a transfer apparatus for moving groups of wrapped bakery products from the grouping apparatus onto the turntable; and

                  arranging a subsequent group of wrapped bakery products on the grouping apparatus during movement of a  
15                  previous group of wrapped bakery products from the grouping apparatus onto the vacuum turntable under the action of the transfer apparatus.

32. A method of forming wrapped bakery products into predetermined pattern thereafter transferring the patterns of wrapped bakery products into bakery trays including the steps of:

5                   providing a vacuum turntable;

                  forming a pattern of wrapped bakery products on the vacuum turntable;

                  providing a transfer apparatus;

                  moving patterns of wrapped bakery products from  
10   the vacuum turntable into bakery trays under the action of the transfer apparatus; and

                  forming a subsequent pattern of wrapped bakery products on the vacuum turntable during movement of a previous pattern of wrapped bakery products into a bakery  
15   tray under the action of the transfer apparatus.